

Blakeslee & Hunter,

Diaphragm Meter,

N^o 65,994,

Patented June 25, 1867.

Fig:1.

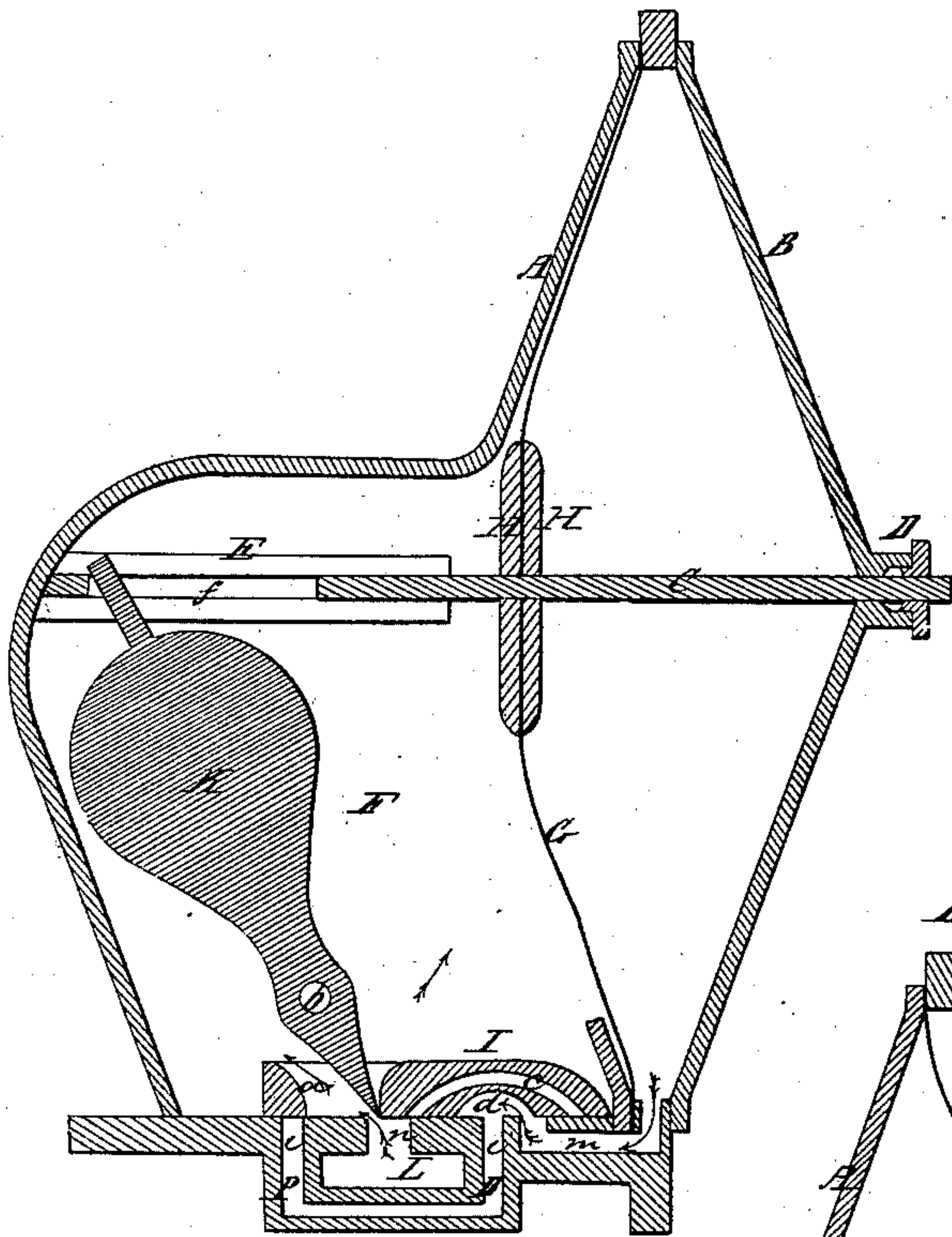
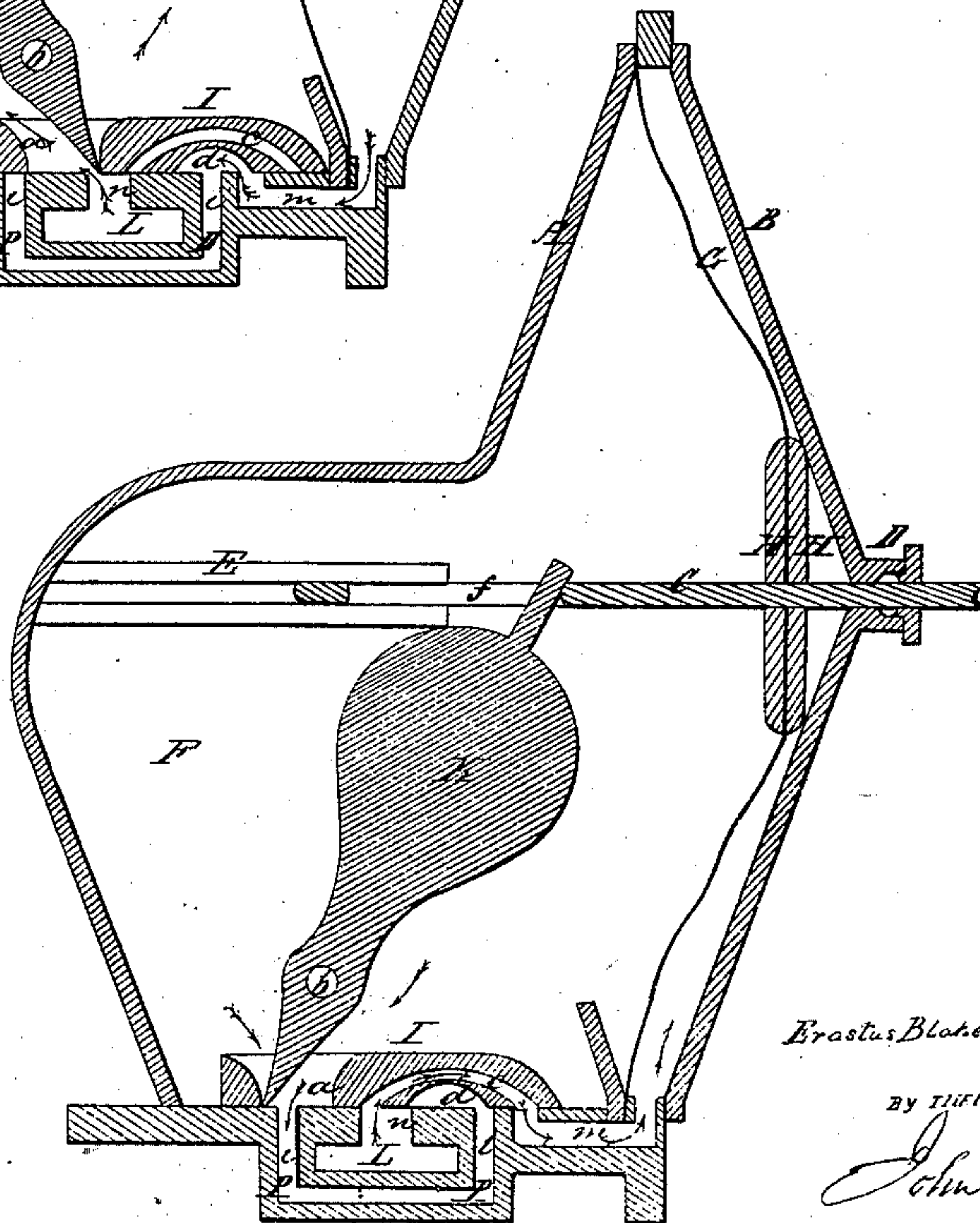


Fig. 2.



Witnesses.

John H. Shumway
A. J. Tibbels

Inventor:

Erastus Blakelee & John S Hunter

BY THE ATTORNEY

John E. Earl

United States Patent Office.

ERASTUS BLAKESLEE, OF PLYMOUTH, AND JOHN S. HUNTER, OF HARTFORD, CONNECTICUT.

Letters Patent No. 65,994, dated June 25, 1867.

IMPROVEMENT IN WATER-METERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, ERASTUS BLAKESLEE of Plymouth, in the county of Litchfield, State of Connecticut, and JOHN S. HUNTER, of Hartford, in the county of Hartford, and State of Connecticut, have invented a new Improvement in Water-Meter; and we do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a vertical central section, showing the valve in position, admitting the water to one side and discharging it from the other; and in

Figure 2 a like section, the valve changed to reverse the inlet in the discharge of the water.

This invention is designed with special reference to the measuring of running fluids, but is applicable to other uses, and consists in the peculiar construction of the valve and its mode of operation.

To enable others skilled in the art to construct and use our improvement, we will proceed to describe the same, as illustrated in the accompanying drawings.

A and B are the two heads of a cylinder; C, a piston-rod, passing centrally through the said cylinder, one end supported by a stuffing-box or guide, D, the other in a guide, E, arranged in the valve-chamber F, which said chamber opens into the said cylinder. The cylinder may be arranged for a piston upon the rod C, or for a diaphragm, as in the drawing. The diaphragm, denoted by the heavy black line G, is fitted between the heads of the cylinder and attached to the rod C, and secured by plates H H. I is the valve, arranged with passages *a*, *c*, and *d*, and is operated by a weighted lever, *k*, which has its fulcrum at *b*. The upper end of the lever is operated by the rod C, which is formed with a slot, *f*, so that, as the rod is moved from the position in fig. 1 to that in fig. 2, the lever is raised past the perpendicular, by one end of the slot coming in contact with the lever, and, when so raised, its weight is sufficient to cause it to fall to the position in fig. 2, and in its fall the lower end of the lever comes directly in contact with the valve I, and so causes the valve to move from its position in fig. 1 to that denoted in fig. 2, and upon the return of the rod, the weighted lever is in like manner carried back to its first position, and with it the valve also. L is the inlet, and P the outlet, each communicating, in any convenient manner, with its respective feed and discharge pipes; *i* and *l* are the two outlet ports, and *n* the inlet port; *m* is a channel, to form a passage from the valve to the opposite side of the diaphragm. The case which encloses the chamber F, as well as the cylinder itself, may be of any convenient form of construction. This completes the construction of my invention; its operation is as follows:

In the two views the rod and diaphragm are represented as upon the turning point, after the position of the valve has been changed—the inflowing water represented by blue arrows, and the outflowing by red arrows. The cylinder-front of the piston, in fig. 1, is supposed to be filled with water; at the same time more water is flowing into the chamber F, back of the piston, through the port *n* and opening *a* of the valve, which creates a pressure upon that side of the diaphragm, forcing the diaphragm forward, and consequently forcing the water through the passage *m*, and through the passage *d* in the valve, through the port *l*, into the discharge pipe. This continues until, by the movement of the rod, the weighted lever *k* has been turned so far over that, by its own gravitation, it will fall into the position denoted in fig. 2, carrying with it the valve I, and reversing the position of the openings. At this time the piston or diaphragm has completed its stroke, and arrived at the position denoted in fig. 2. The water now flows in through the port *n* and passage *c* of the valve, and passage *m*, to the opposite side of the piston, by the force of which the piston is returned, and the water previously admitted to the other side of the piston now flows through the opening *a* of the valve, and the port *i*, and thence to the discharge pipe, and so continues until the movement of the rod C has carried the lever *k* over so that, by its own gravitation, it falls to the position denoted in fig. 1, and in its fall reverses the valve to the position also denoted in fig. 1. To regulate the amount of water passing through the meter, a counter can be attached, at any convenient point, in the usual manner. We prefer the diaphragm as shown and described for operating the rod C, yet it will be evident that a solid piston, working in a cylinder, and fixed to the rod C, would perform the same office, but with more friction and at greater cost of construction.

Having thus fully described our invention, what we claim as new and useful, and desire to secure by Letters Patent, is—

1. The valve I, having the opening *a* and passages *d* and *e*, arranged in relation to the ports in the valve-seat so as to operate substantially in the manner described.
2. In combination with the above we claim the weighted lever *k*, constructed so as by its movement to reverse the flow of water, substantially as herein set forth.
3. In combination with the above we claim the diaphragm or piston, arranged substantially in the manner described.

ERASTUS BLAKESLEE,
JOHN S. HUNTER.

Witnesses:

TIMOTHY E. STEELE,
ROGER WELLES.